

FIG. 1A

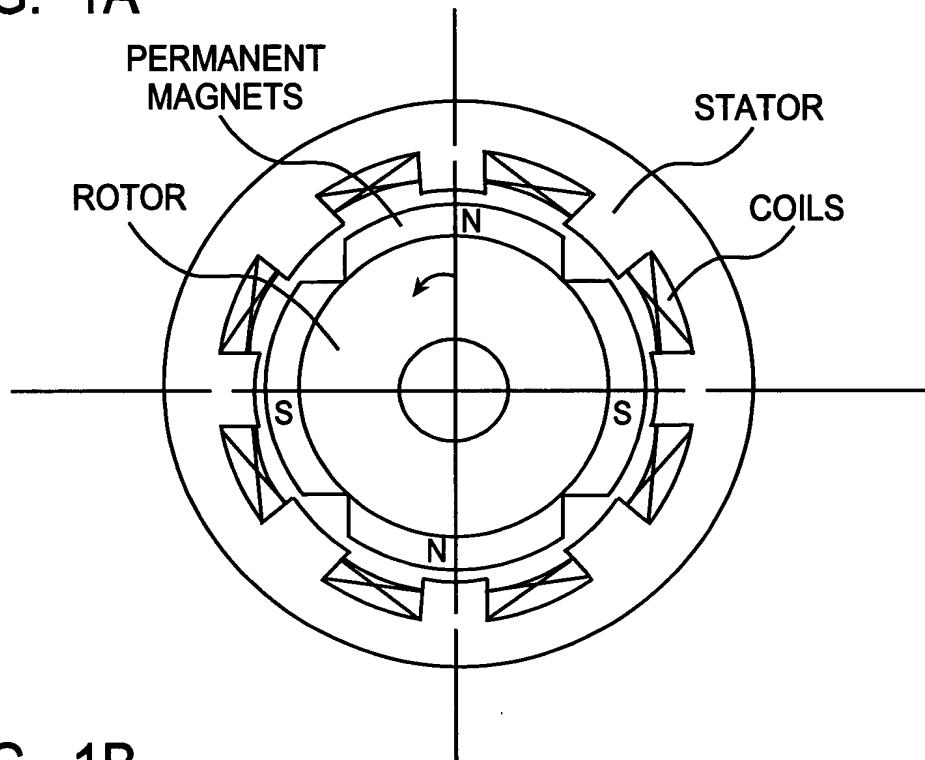


FIG. 1B

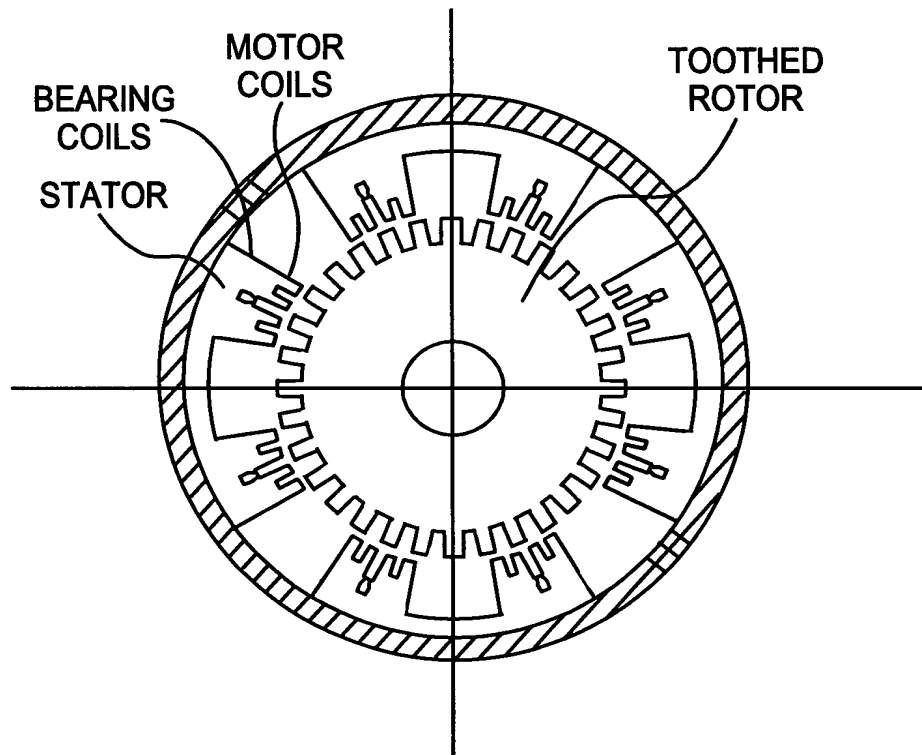


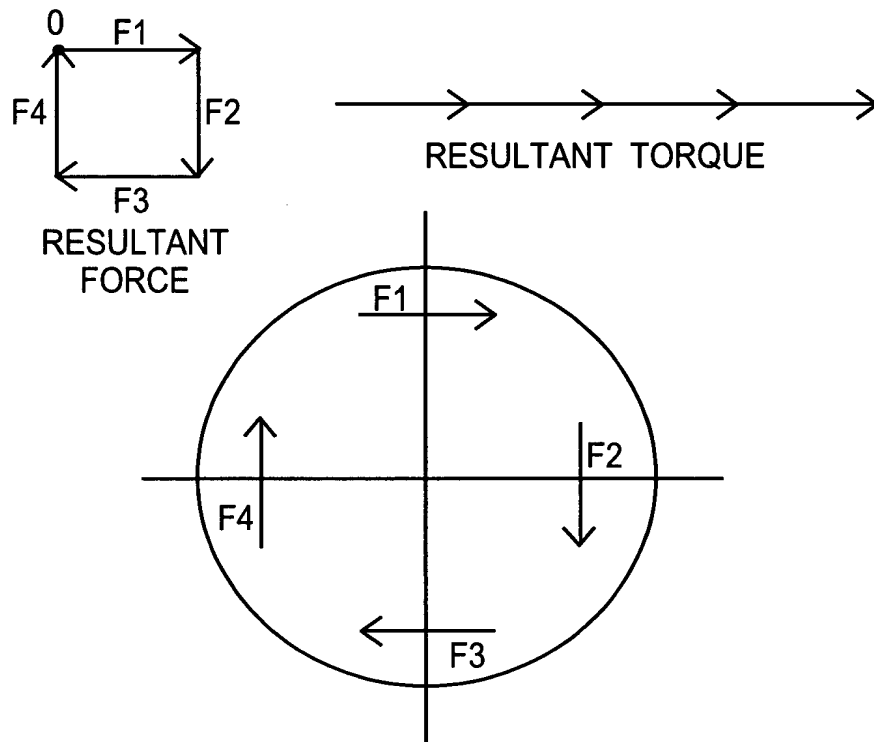
FIG. 1 is a schematic diagram of a circular magnetic assembly 10. The assembly is divided into four quadrants, labeled SEG.-1, SEG.-2, SEG.-3, and SEG.-4. Each quadrant contains a central circular region and an outer ring. The outer ring is divided into segments labeled 1, 2, and 3, which are further divided into sub-segments labeled N and S. The segments are arranged in a repeating pattern around the ring. The central regions are labeled SEG.-1, SEG.-2, SEG.-3, and SEG.-4. The outer ring is labeled COIL SEGMENT 1, COIL SEGMENT 2, COIL SEGMENT 3, and COIL SEGMENT 4. The diagram also shows a coordinate system with X and Y axes, and force vectors  $F_{1x}$ ,  $F_{2y}$ ,  $F_{3x}$ , and  $F_{4y}$ .

Block diagram of the Radial Position & Rotational Controller (30). The controller receives three inputs: RADIAL (x) POSITION, RADIAL (y) POSITION, and W. It outputs four signals: POWER TO COIL SEGMENT 1, POWER TO COIL SEGMENT 2, POWER TO COIL SEGMENT 3, and POWER TO COIL SEGMENT 4.



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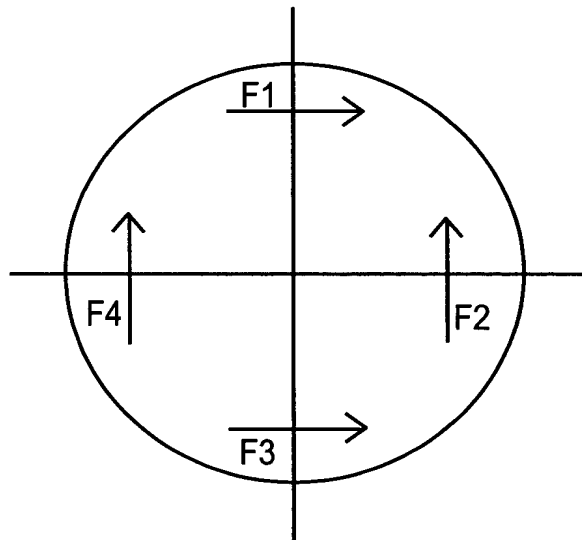
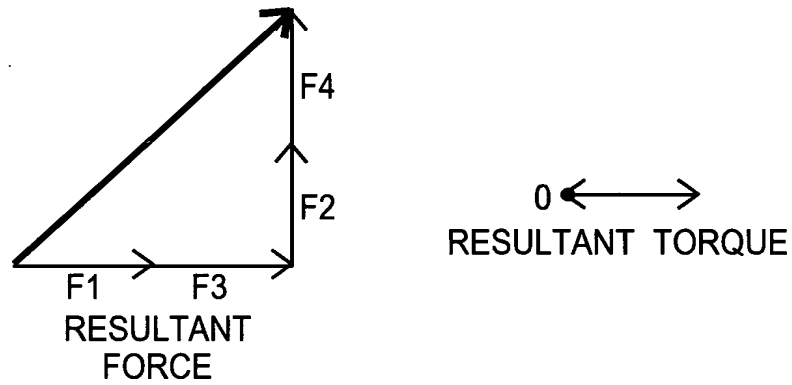
FIG. 3



X - OR Y - DIRECTION OF FORCE				RESULTANT		
F1	F2	F3	F4	Fx	Fy	TORQUE
+	-	-	+	0	0	++++



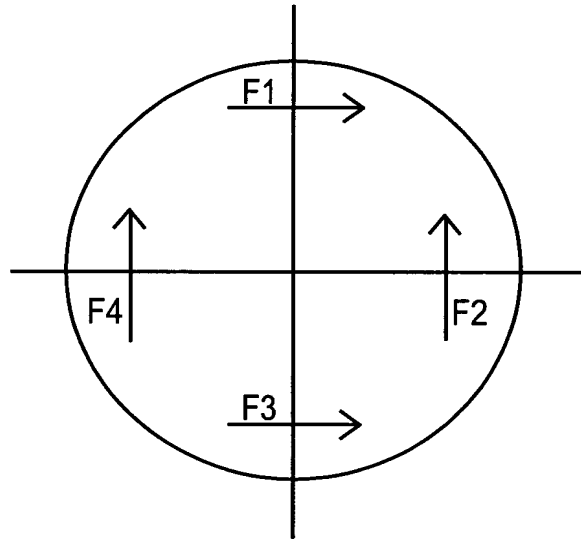
FIG. 4



X - OR Y - DIRECTION OF FORCE				RESULTANT		
F1	F2	F3	F4	F <sub>x</sub>	F <sub>y</sub>	TORQUE
+	+	+	+	++	++	0



FIG. 5



X - OR Y - DIRECTION OF FORCE				RESULTANT		
F1	F2	F3	F4	F <sub>x</sub>	F <sub>y</sub>	TORQUE
+	0	0	0	+	0	+
+	0	+	0	++	0	0
+	0	-	0	0	0	++
-	0	0	0	-	0	-
-	0	-	0	-	0	0
-	0	+	0	0	0	-
+	+	-	-	0	0	++++



FIG. 6

